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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/593,424	06/14/2000	Katsuya Irie	1081.1091/JDH	8248

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EXAMINER	
LEWIS, DAVID LEE	
ART UNIT	**PAPER NUMBER**
2673	11

DATE MAILED: 03/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	Applicant(s)
09/593,424	Irie et al.
Examiner	**Art Unit**
David L. Lewis	2673

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *Mar 3, 2003* .

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-26* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

Title: Plasma Display Panel With Constant Color Temperature Or Color Deviation

DETAILED ACTION

Claim Rejections - 35 U.S.C. § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.
>
> The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. **Claims 1-6, 11, 12, and 21-26 are rejected under 35 U.S.C. 102(e) as being anticipated by Kasahara et al. (6331843).**

3. **As in claims 1, 11, 12, and 22 Kasahara et al. teaches of** a plasma display panel which displays colors by exciting a plurality of fluorescent substances of different colors using ultra-violet rays generated during discharge, comprising: a drive unit which receives an image signal different clors and drives the panel according to the image siganl while decreasing the drive frequency of the sustain discharge as the display load factor increases, **column 2 lines 14-17, 46-61**, wherein said drive unit makes correction to change the intensity of the image signal of a predetermined color, so that the ratio of an emission intensity of said fluorescent substance of each color during white display is roughly the same when said display load factor is low and high, depending on a change of the display load factor, **column 3 lines 33-44, column 21 lines 10-20, column 22 lines 5-15**. Wherein the drive

frequency can be increased or decreased based on a brightness detecting means as independently corrected for each of R, G, B, colors, said brightness detecting means having a direct correspondence to load factor, the adjustments to the R, G, B color intensity each being independently increased or decreased according to load factor. Kasahara et al. teaches of changing the number of subfields according to a subfield number Z, as well as changing the pulse frequency of each subfield according to a weighting factor N, on the basis of brightness data as determined by a brightness detecting means, for the purpose of maintaining noiseless, uniform image quality, in a red, blue, and green colored plasma display panel. See figure 11 items 30, 34 and 18. Kasahara teaches of independently adjusting, R, G, B colors, column 20 lines 49-67, column 21 lines 1-20, wherein each color is modified based on detected signal levels for each color, for example, Rav and Rpk are detected, which is used to determine a weight factor RN, and a subfield number RZ, which is resepctively done for each color. **These factors RN and RZ allow the subfield processor to determine the adjusted subfield frequency fed to the display, column 24 lines 60-67.** Wherein Kasahara et al.'s system of subfield adjustments inherently includes changes when said load factor is low (black image) and high (white image), in order to keep the imagine quality uniform and noiseless, such that a high load factor, such as a white colored image, would produce appropriate adjustment factors to each primary color to maintain a uniform and noiseless display of a white image, column 26 lines 5-15.

4. **As in claim 2 and 25, Kasahara et al. teaches of** a plasma display panel which displays colors by exciting a plurality of fluorescent substances of different colors using ultra-violet rays generated during discharge, comprising: a drive unit which drives the panel with decreasing the drive frequency of the sustain discharge as the display load factor increases, **column 2 lines 14-17, 46-61**, wherein when the display load factor increases, said drive unit makes correction so that the emission intensity of green is decreased or the emission intensity of blue is increased compared with the case when the display load factor is lower, **column 3 lines 33-44, column 21 lines 10-20, column 22 lines 5-15**.

Wherein the drive frequency can be increased or decreased based on a brightness detecting means as independently corrected for each of R, G, B, colors, said brightness detecting means having a direct correspondence to load factor, the adjustments to the R, G, B color intensity each being independently increased or decreased according to load factor.

5. **As in claim 3, 24, and 26, Kasahara et al. teaches of** a plasma display panel which displays colors by exciting a plurality of fluorescent substances of different colors using ultra-violet rays generated during discharge, comprising: a drive unit which drives the panel with decreasing the drive frequency of the sustain discharge as the display load factor increases, **column 2 lines 14-17, 46-61**, wherein when the display load factor decreases, said drive unit makes correction so that the emission intensity of green is increased, or the emission intensity of blue is decreased compared with the case when the display load factor is higher, **column 3 lines 33-44, column 21 lines 10-20, column 22 lines 5-15**. Wherein the drive frequency can be increased or decreased based on a brightness detecting means as independently corrected for each of R, G, B, colors, said brightness detecting means having a direct correspondence to load factor, the adjustments to the R, G, B color intensity each being independently increased or decreased according to load factor. **As in claims 4 and 5**, Kasahara et al. teaches of wherein said unit monitors the power consumption, figure 16 item 54, and frequency, figure 16 item 36.

6. **As in claim 6, Kasahara et al. teaches of** a plasma display panel according to wherein said drive unit monitors a luminance value and/or display area value of each color to be supplied per predetermined unit time, **column 4 lines 1-19**, and corrects said emission intensity of green or blue on the condition that said display load factor increases when the accumulated total of said luminance value and/or display area value per predetermined unit time is higher, **column 22 lines 6-21**, and said display load factor decreases when the accumulated total of said luminance value and/or display area

value per predetermined unit time is lower, **column 21 lines 1-20, column 22 lines 6-21**. Wherein the brightness detecting means monitors peak and average brightness levels, as well as contrast and ambient illumination on the display area, and depending on the load factor, adjusts the R, G, B, color levels independently, to achieve superior display performance.

7. **As in claims 21 and 23, Kasahara et al. teaches of** a plasma display panel which displays colors by exciting a plurality of fluorescent substances of different colors using ultra-violet rays generated during discharges comprising; a driver frequency detection unit to detect a drive frequency, **figure 11 item 36**, and adjust output values of a gamma table in a gamma conversion process, **figure 11 item 10**, according to the detected drive frequency, **figure 11 item 36**, so that a ratio of an emission intensity of each of the different colors during a white display is substantially equal regardless of the display load factor, **figure 11 items 30 and 34**. Wherein an input video signal is separated into input 2 (R, G, B) as well as (HD and VD) signals, and a gamma correction device feeds the R,G,B gamma adjusted information to a brightness detector while the corresponding vertical synchronizing information is detected by the vertical sync frequency detection means 36. Depending on the detected vertical synchronizing information (for example a frequency of 60 Hz or 72 Hz) and detected brightness information of the R,G,B data, the image characteristics determining device adjusts the number of subfields Z and the subfield frequency N, to maintain a noiseless, uniform image quality, regardless of the display load factor.

8. **Claims 11 is rejected under 35 U.S.C. 102(e) as being anticipated by You (6034655).**

9. **As in claim 11, You teaches of** a plasma display panel which displays colors by exciting a plurality of fluorescent substances of different colors using ultra-violet rays generated during discharges, comprising: a drive unit driving the plasma display panel and changing a drive frequency of sustain

discharges according to a display load factor to change an emission intensity of one or more of the plurality of fluorescent substances of predetermined colors, so that a ratio of an emission intensity of each of the different colors during a white display is substantially equal regardless of the display load factor, **column 3 lines 42-48, column 4 lines 59-67, and column 5 lines 1-32.**

10. **Claims 11 is rejected under 35 U.S.C. 102(e) as being anticipated by Kang (6400347).**

11. **As in claim 11, Kang teaches of** a plasma display panel which displays colors by exciting a plurality of fluorescent substances of different colors using ultra-violet rays generated during discharges, comprising: a drive unit driving the plasma display panel and changing a drive frequency of sustain discharges according to a display load factor to change an emission intensity of one or more of the plurality of fluorescent substances of predetermined colors, so that a ratio of an emission intensity of each of the different colors during a white display is substantially equal regardless of the display load factor, **column 4 lines 40-60.**

Claim Rejections - 35 U.S.C. § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. **Claims 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kasahara et al. (6331843).**

14. **As in claim 7, Kasahara et al. teaches of** a plasma display panel which display colors by exciting a plurality of fluorescent substances of different colors using ultra-violet rays generated during discharge, **column 21 lines 1-20, figures 11 and 14-17. However Kasahara et al. does not explicitly** teach of wherein a chromaticity coordinate value during white display is roughly constant regardless the display load which depends on the luminance and/or display area of the display image. This result of wherein a chromaticity coordinate value during white display remaining constant regardless of the display load **is well within the scope of the invention as taught by Kasahara and would have been obvious to the skilled artisan** given it is intended to produce this result by independently adjusting the R, G, B, color levels based on the monitored load factor, for the purpose of achieving consistent color without pseudo contour noise and to achieve a clearer image without any distortion, wherein this system produces a chromaticity coordinate value during white display that is roughly constant regardless of display load as claimed.

15. **As in claim 8 and 9, Kasahara et al. teaches of** a plasma display panel which displays colors by exciting a plurality of fluorescent substances of different colors using ultra-violet rays generated during discharge, **column 21 lines 1-20, figures 11 and 14-17. However Kasahara et al. does not explicitly** teach of wherein a color temperature value during white display is roughly constant regardless the display load which depends on the luminance and/or display area of the display image

nor wherein the deviation from the color temperature curve denoted by the black body radiation curve during white display is roughly constant regardless the display load which depends on the luminance and/or display area of the display image. For the same reasons of obviousness as applied to claim 7 above these features of wherein color temperature value during white display remaining roughly constant and wherein the deviation from the color temperature curve denoted by the black body radiation curve during white display remaining roughly constant **are well within the scope of the invention as taught by Kasahara et al. and would have been obvious to the skilled artisan** given the display apparatus capable of adjusting the number of subframes to brightness produce these white display features as claimed. For the same reasons of obviousness as applied to claims 7-9, **as in claim 10**, wherein a chromaticity coordinate value during white display is within ±0.005uv of the deviation region from the color temperature curve denoted by the black body radiation curve regardless the display load which depends on the luminance and/or display area of the display image, **would have also been obvious to the skilled artisan** given the accuracy of the display system and brightness adjustment means as taught by Kasahara et al., column 20 lines 49-65, adjusting the R, G, B, color levels independently, to achieve superior display performance, as claimed.

16. **Claims 13-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kasahara et al. (6331843) in view of You (6034655).**

17. **As in claim 13 and 14, Kasahara et al. is silent as to** said distinction of said respective levels and specifically adjusting said blue and green intensities. **You teaches of** another color plasma display for adjusting the sustain driving frequency to appropriate ratios according to luminance or contrast of the screen for keeping the white balance stable regardless of variation of the luminance or contrast of the screen, column 3 lines 43-47, column 4 lines 58-67, column 5 lines 5-25. The plasma display device of You is applicable to the plasma display device of Kasahara given it solves the same problem by means of adjusting the sustaining pulses to achieve white balance. Wherein You further shows that given variations of the luminous efficiencies for the R, G, B fluorescent display material, it is necessary to balance the ratio of colors as the higher load such as a white image is approached, column 2 lines 35-67, wherein the Green material is more efficient than the Blue material at higher screen luminance, and therefore the obvious need to increase the Blue while decreasing the Green to achieve a uniform white balanced image, as found in claims 13 and 14. **Further, as in claims 15 and 16**, Kasahra et al teaches of adjusting said subfield frequency based on power detection, figure 16 item 54. **As in claims 17 and 18**, Kasahara detects the drive frequency of the sustain discharges of the plasma display panel and adjusts the emission intensity, column 25 lines 50-67, column 26 lines 1-15. **As in claims 19 and 20**, Kasahara detects a luminance value and/or a display area value of each color to be supplied per predetermined unit time, and adjusts the emission intensity, figure 15 item 52.

Response to Arguments

18. Applicant's arguments filed 3/3/2003 have been fully considered but they are not persuasive. **Regarding claims 1-6**, Kasahara et al. teaches of changing the number of subfields according to a subfield number Z, as well as changing the pulse frequency of each subfield according to a weighting factor N, on the basis of brightness data as determined by a brightness detecting means, for the purpose of maintaining noiseless, uniform image quality, in a red, blue, and green colored plasma display panel. This equates to adjusting subfield frequency as the load factor varies to maintain image quality. Contrary to the Applicant's assertion, Kasahara teaches of independently adjusting, R, G, B colors, column 20 lines 49-67, column 21 lines 1-20, wherein each color is modified based on detected signal levels for each color, for example, Rav and Rpk are detected, which is used to determine a weight factor RN, and a subfield number RZ, which is resepctively done for each color. **These factors RN and RZ allow the subfield processor to determine the adjusted subfield frequency fed to the display, column 24 lines 60-67.** Wherein Kasahara et al.'s system of subfield adjustments inherently includes changes when said load factor is low (black image) and high (white image), in order to keep the imagine quality uniform and noiseless, such that a high load factor, such as a white colored image, would produce appropriate adjustment factors to each primary color to maintain a uniform and noiseless display of a white image, column 26 lines 5-15. **Also see figure 11 items 30, 34, and 18 for the frequency adjustment means. Regarding claims 7-10**, the Applicant

is correct in the assertion that the Examiner is basing the rejection on the same conclusion used to reject claim 1, reasons for which have been further detailed above. In order to maintain the noiseless and uniform color quality Kasahara **naturally requires, as is known in the art,** that a chromaticity coordinate value during a white display, a color temperature value during a white display, and a color temperature curve denoted by a black body radiation curve during a white display, to be roughly constant regardless of display load. This is because if it were not the case that these values remain constant, the image quality during a high (white) or low (black) load would not be uniform, column 26 lines 5-15. The adjustments of Kasahara are based on brightness detection, power consumption detection, temperature detection, contrast detection, and ambient illumination detection. The image characteristic determining means of Kasahara calculates the adjustments so that a chromaticity coordinate value during a white display, a color temperature value during a white display, and a color temperature curve denoted by a black body radiation curve during a white display, are roughly constant regardless of display load. Kasahara uses the subfield processor to set the various frequencies or pulses as well as for setting a pulse width based on a detected input vertical sync frequency, all adjusted within the subfield, for the purpose of uniform color balance. For these reason the rejections in view of Kasahara et al. are maintained. Further You (6034655) also reads on the independent claims, column 3 lines 43-48. Further Kang (6400347) also reads on the independent claims, column 4 lines 40-55.

Conclusion

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yamamoto et al. (603456), Column 11 lines 30-50, 2002/0033830, 6356017, 4692665.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **David L. Lewis** whose telephone number is **(703) 306-3026**. The examiner can normally be reached on MT and THF from 8 to 5. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala, can be reached on (703) 305-4938. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-3900.

Any response to this action should be mailed to:
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(703) 872-9314 (for Technology Center 2600 only)
Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

BIPIN SHALWALA
SUPERVISORY PATENT EXAMINER
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